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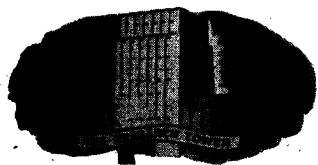
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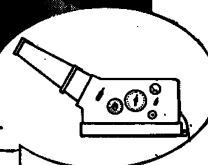
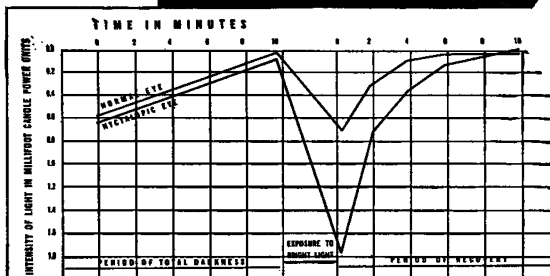
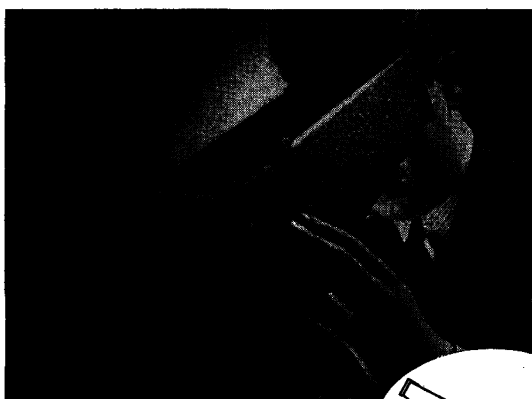


This page is the second of a series on vitamin deficiencies presented by the research division of The Upjohn Company because of the profession's widespread interest in the subject. A two-page insert on the same subject appears in the February 17 issue of The Journal of the American Medical Association.

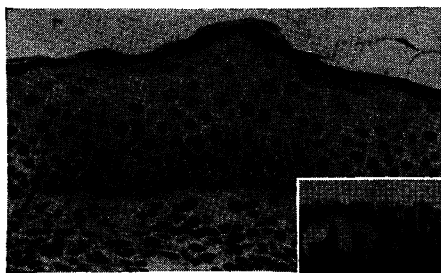
Manifestations of Vitamin A Deficiency

One of the early manifestations of vitamin A deficiency is nyctalopia, a loss of visual acuity in dim light. While several pathologic states (retinitis pigmentosa, toxic amblyopia, detachment of the retina) also produce night blindness, vitamin A deficiency is probably the most frequent cause. After exposure to the blinding glare of a bright light the normal eye adapts itself relatively quickly to lowered illumination. In nyctalopia due to vitamin A deficiency, the time required for recovery of visual acuity is longer.

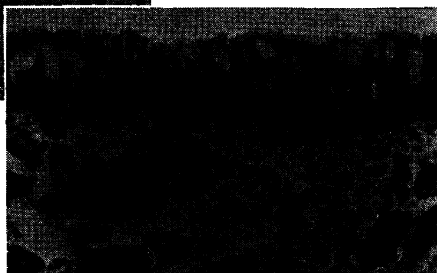
In otherwise normal eyes, measurement of capacity for dark adaptation by means of the biophotometer has been suggested as a method of discovering vitamin A deficiency.



Lower line shows the longer time required for the recovery to pre-exposure level by the nyctalopic.



Above, stratified, keratinizing epithelium of the turbinate mucous membrane of a vitamin A deficient monkey; at right, normal mucosa.



Pathologic epithelial changes produced by vitamin A deficiency are illustrated by the photomicrographs of turbinate mucous membrane taken from normal and vitamin A deficient monkeys. The progressive pathologic process consists of atrophy of the epithelium, reparative proliferation of the basal cells and finally, as depicted in the upper photograph, replacement of the normal by a stratified, keratinizing epithelium.



UPJOHN

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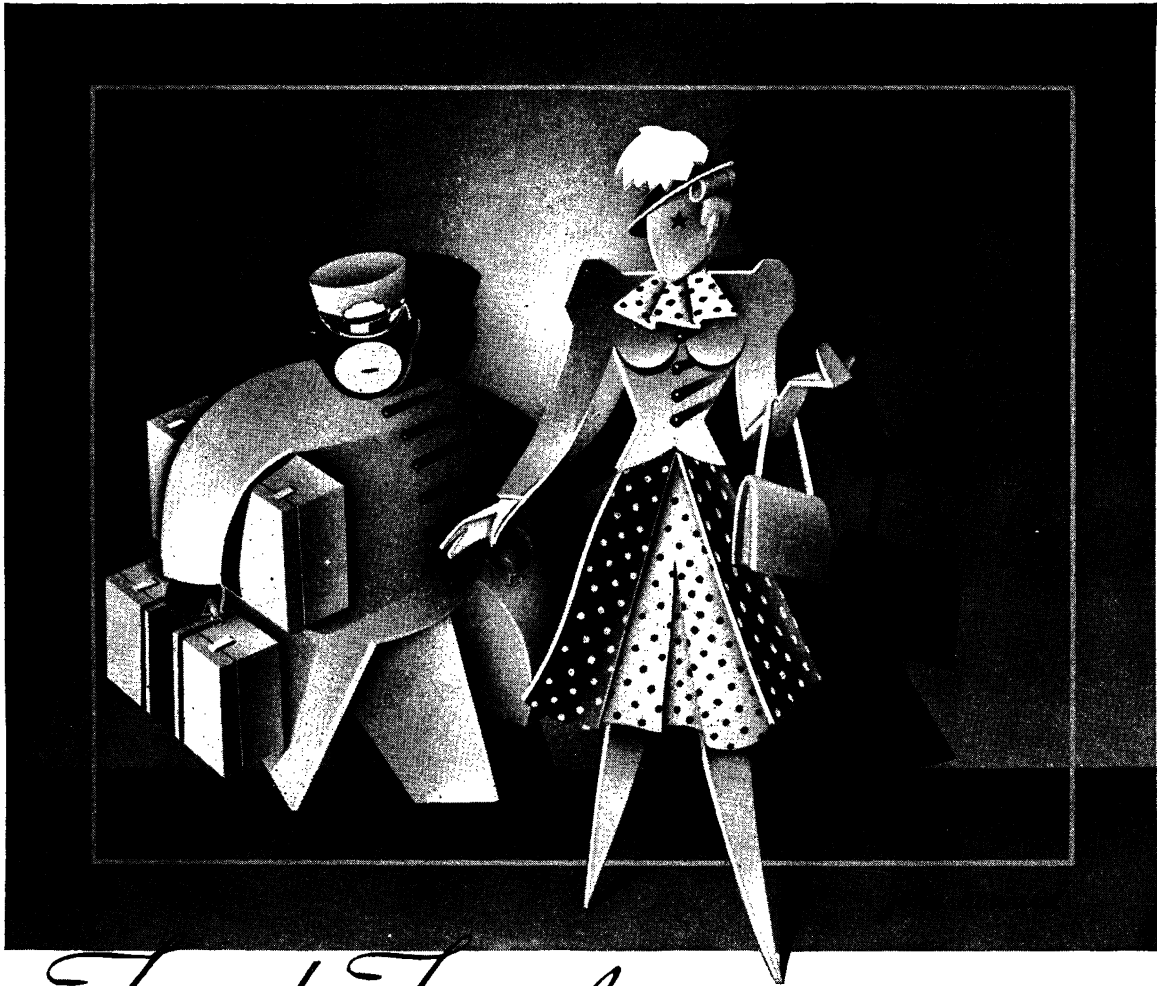
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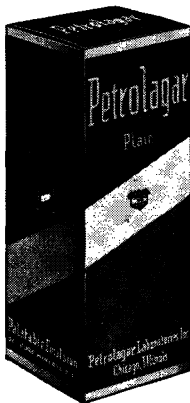
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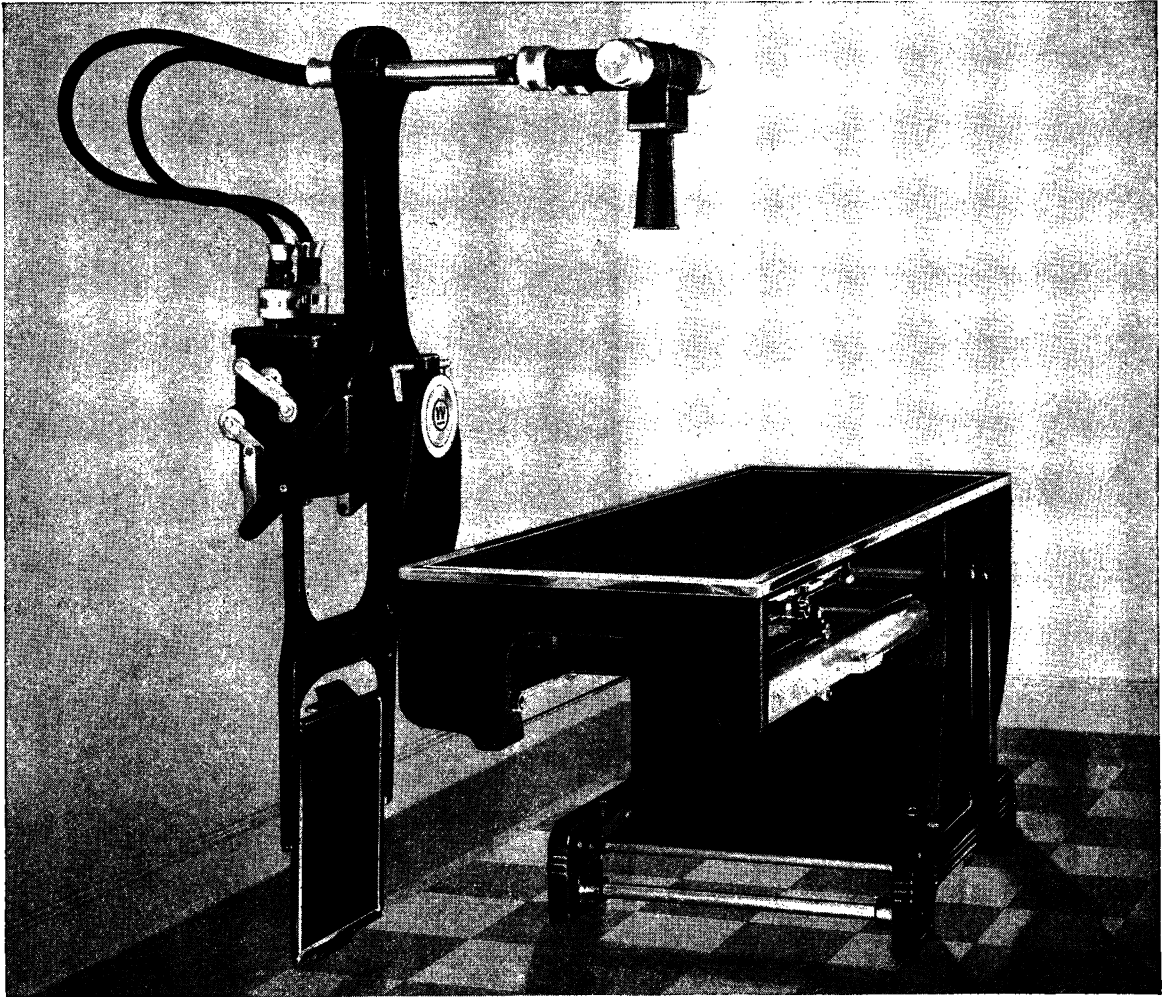
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Please send me the new Simplex Bulletin—without obligation.

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IMMUNE GLOBULIN (Human)

Lederle

CONCERN over the complications of measles may be greatly lessened by the use of Immune Globulin (Human). When the complications of this disease, especially bronchopneumonia, are removed, measles is reduced to the level of a mildly inconvenient episode in the child's life. A single injection of Immune Globulin will generally produce a modified measles which is not apt to be followed by complications. The injection should be given a few days after intimate exposure to the infection.

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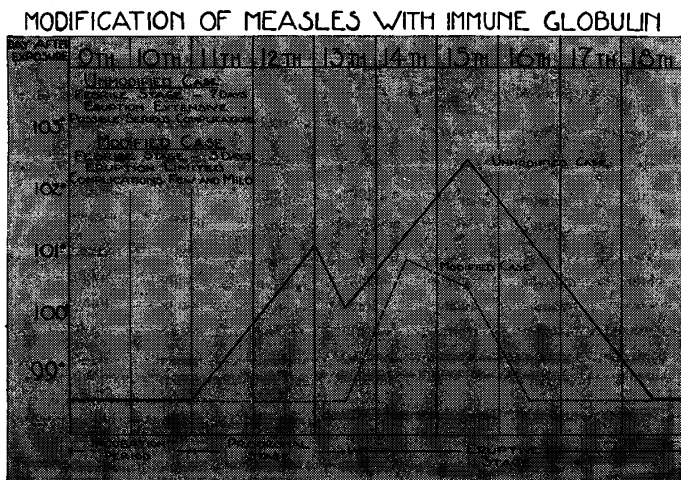
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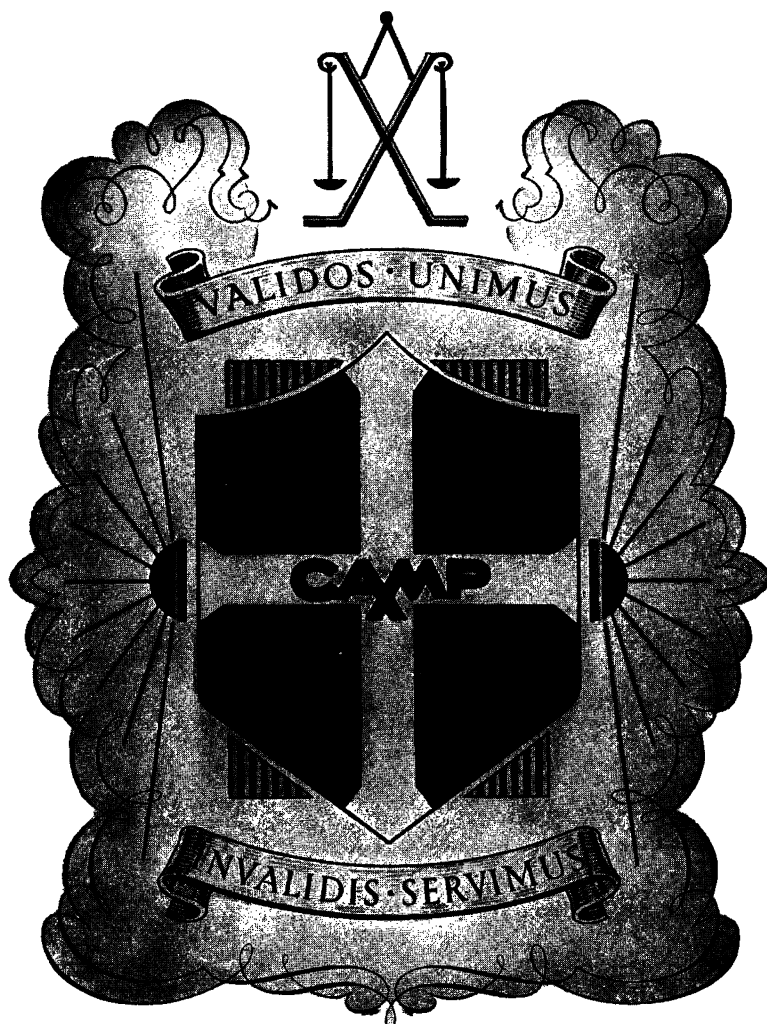
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Samuel H. Camp
President

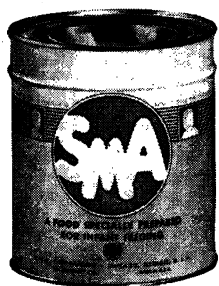
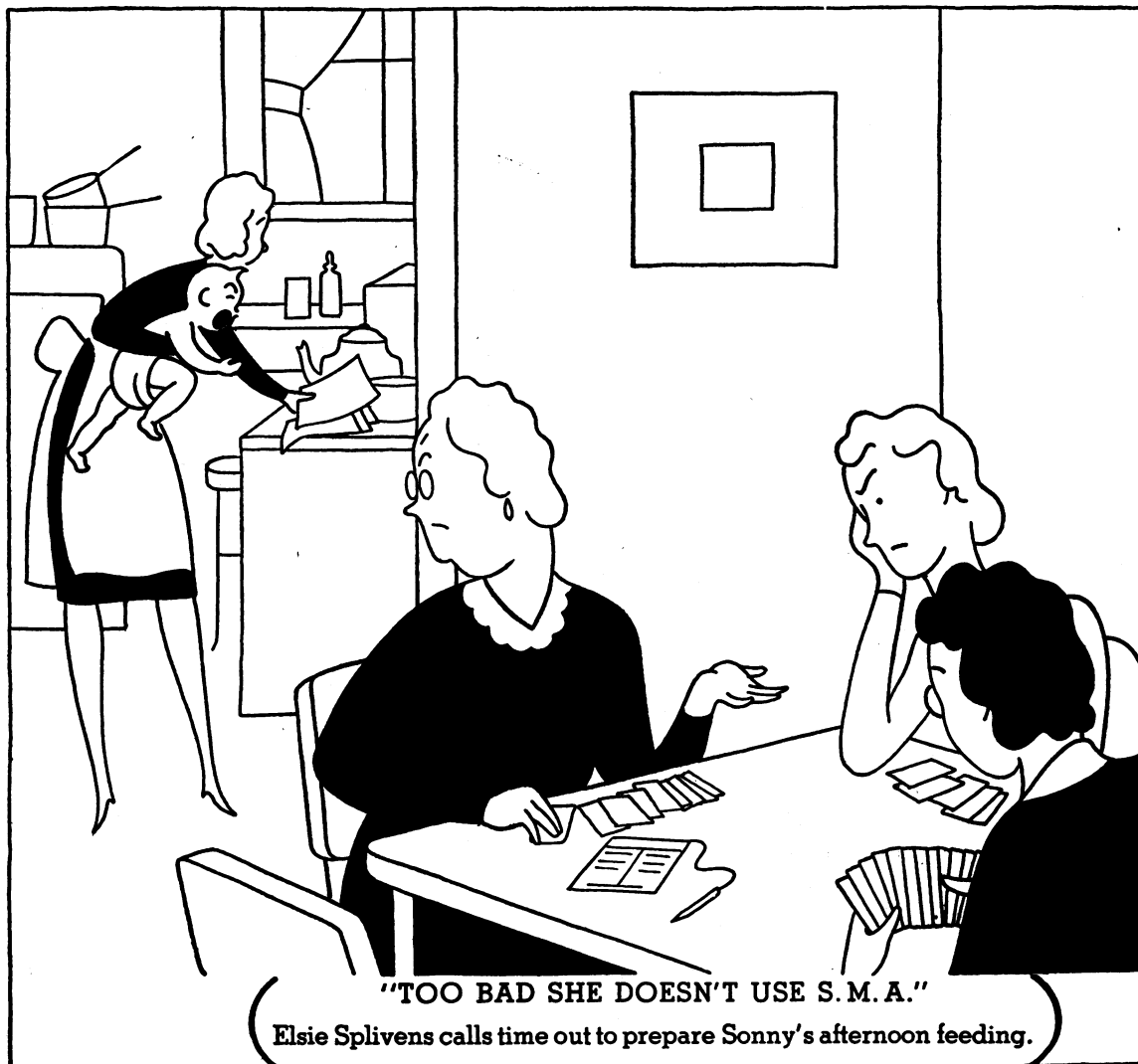
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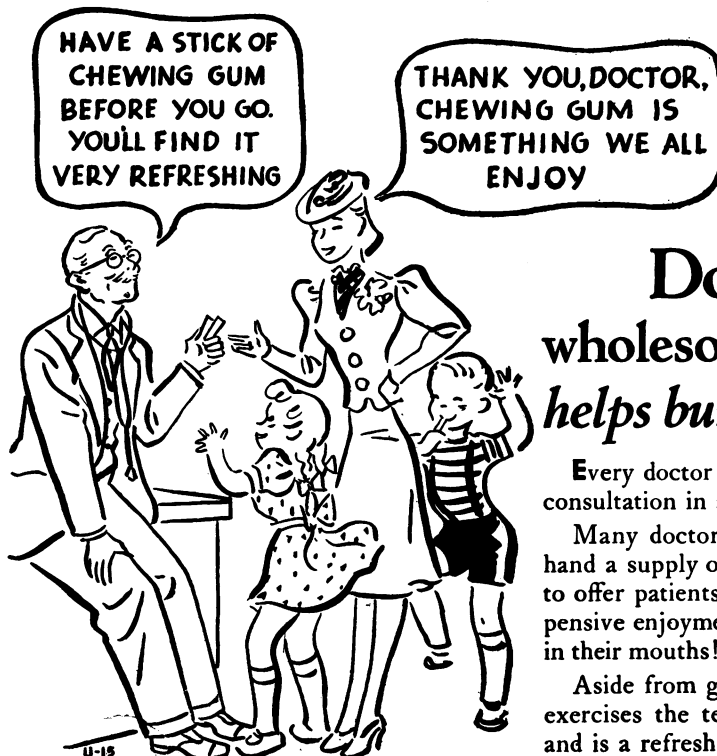
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Many doctors know how helpful it is to have on hand a supply of wholesome, delicious Chewing Gum to offer patients when saying "good-bye." This inexpensive enjoyment sends them away with a good taste in their mouths!

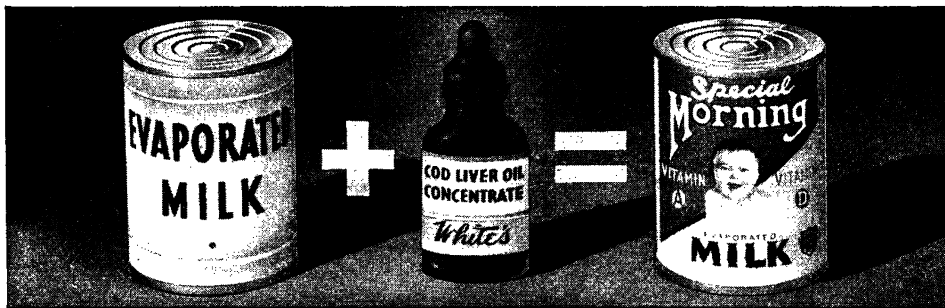
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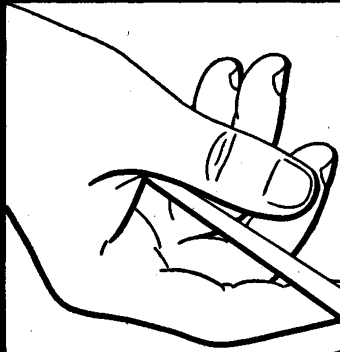
Special Morning Milk contains 500 units Vitamin D to the reconstituted quart (16 fluid oz. Special Morning Milk and 16 fluid oz. water). The Vitamin D added to Special Morning Milk is obtained from the natural source—cod liver oil. However, there is no cod liver oil taste in the milk.



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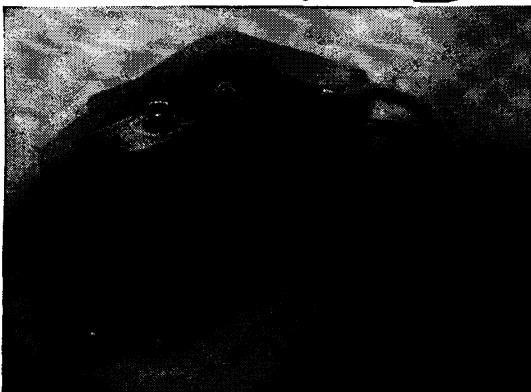


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First—It provides rapid, efficient vasoconstriction when applied to nasal mucous membranes, with an effect more prolonged than that of ephedrine or epinephrine.

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EMULSION— $\frac{1}{4}\%$ (1-oz. bottle with dropper)



SOLUTION— $\frac{1}{4}\%$ for dropper or spray
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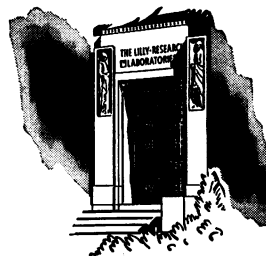
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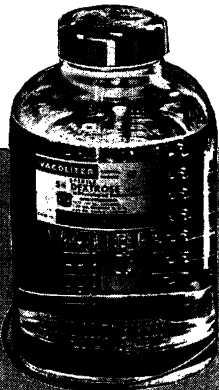
*A convenient test kit
for determination of urinary
excretion of bismuth is available.*

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Now
~~no more filter cloths~~
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Tests every unit for purity, safety and stability.

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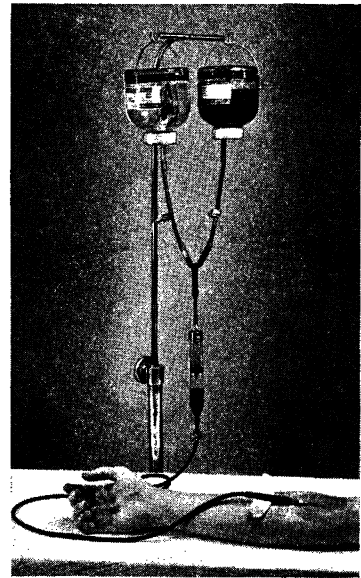
In the VACOLITER, offers the one vacuum container-dispenser, in which solutions are packed in mechanically induced vacuum, with visible proof of vacuum.

Has been granted full acceptance by the profession.

Saves you time and labor, in manifold ways.

Saves you money by highly specialized quantity production.

Reduces hazard with solutions so carefully made and tested that millions of units have been used without pyrogenic reaction.



With the Baxter Transfuso-Vac, blood transfusion becomes an unbroken technique reduced to its simplest terms.

Formerly—with every change of containers, tubes or filters, and every step in technique that permitted spillage or waste—maintenance of asepsis was threatened. But with the Baxter Transfuso-Vac, blood transfusion can be carried through without change or break—in a single-handed technique that is smooth, clean, easy and largely automatic.

The Baxter Transfuso-Vac is a modified Baxter Vacoliter, containing under vacuum, pyrogen-free Sodium Citrate 2½% in Physiological Solution of Sodium Chloride. Through the rubber stopper under the tamper-proof closure the needle of the Baxter Transfuso Valve is inserted. The donor needle is then inserted into the vein.

As the Valve is opened, the air pressure is neutralized and a natural flow of donor blood occurs. With a steady swirling motion the operator mixes the blood and citrate to prevent formation of clots . . . Thus hermetically stored, the blood may be transported, placed in the blood bank, automatically filtered, infused—all with the utmost simplicity and safety.

NEWLY COMPILED, an editorial bulletin in which are brought together the more important Questions users ask about the Baxter Transfuso-Vac technique, with authoritative Answers. Ask for your copy of Q's and A's.

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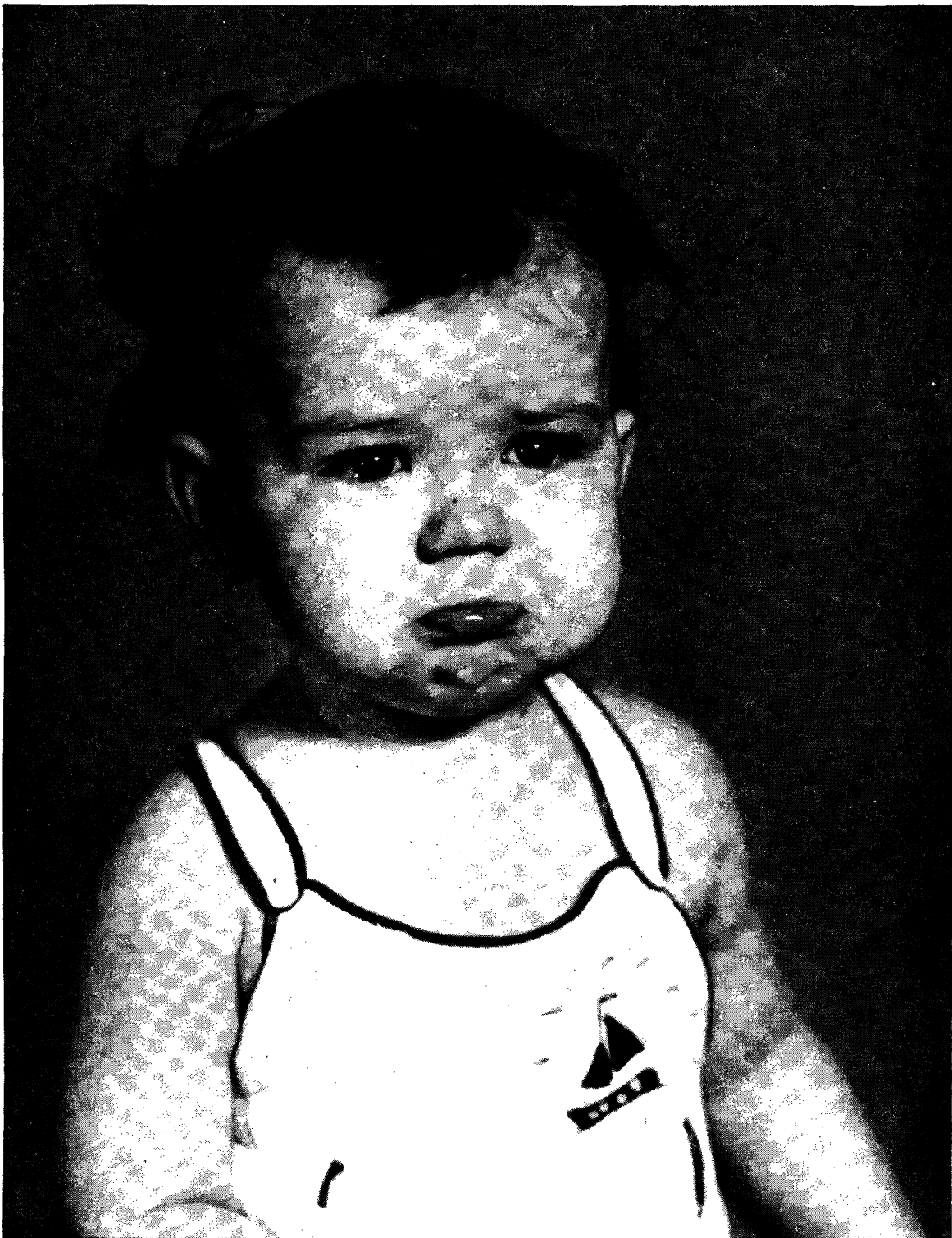
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as spinach did not increase iron storage in the body, but clinical studies of children have demonstrated that the iron in Pablum is present in available form.^{3,4,5,6,7} Bibliography on request

MEAD JOHNSON & COMPANY, Evansville, Indiana, U.S.A.

METHODS FOR QUANTITATIVE ESTIMATION OF THE VITAMINS

V. The Determination of Riboflavin

● In 1929, the so-called "water-soluble vitamin B" was considered to be composed of two factors, heat-labile vitamin B and heat-stable vitamin G (American nomenclature). General recognition of the existence of vitamin G stimulated research on methods for its quantitative estimation. As a result, a number of bioassay methods for vitamin G were evolved (1, 2) and widely used to determine the vitamin G values of foods.

By 1937, however, it was evident that the heat stable fraction of the vitamin B complex was not a single entity, but rather a mixture of essential factors, among them the yellow-green fluorescent pigment, riboflavin (3). Hence, another chemical compound has recently attained significance in human nutrition (2, 4). The establishment of specific methods for the determination of riboflavin in foods immediately became of interest to workers in the field of nutrition.

As to methods for estimation of riboflavin, it is commonly accepted that the Bourquin-Sherman bioassay method (5)—originally devised for vitamin G—measures riboflavin rather than any other factor (2). This method provided for depletion of the body stores of young rats by confinement to a specified "vitamin G-free" diet and determination of the growth response of the animals to graded supplementary doses of the material under assay. One Bourquin-Sherman vitamin G unit is now considered

equivalent to 2.5 micrograms (1/1000 milligram) of riboflavin, the probable average value being about 3 micrograms.

Attempts have also been made to devise a physico-chemical method for estimation of this factor. The yellow-green fluorescence of riboflavin solutions—reaching its maximum between pH 6.0 and pH 7.0—is one of the distinctive properties of this compound (6). The measurement of the intensity of this fluorescence appears to be a promising method for estimating the riboflavin content of a suitably prepared solution, within certain ranges of riboflavin concentrations. However, many difficulties such as the complete extraction of riboflavin from foods and the removal of interfering materials from the extract must be overcome before fluorometric methods can be applied to the determination of riboflavin in all foods. However, recent reports demonstrate that fluorometric methods are adaptable to the estimation of riboflavin in certain specific foods and that a reasonable correlation may be expected between values determined by fluorometric and bioassay methods (7).

From available information (8), it is apparent that riboflavin possesses a high degree of heat stability and is not significantly affected by commercial canning procedures. Thus, the many varieties of canned foods available to the consumer provide convenient and economical sources of this dietary essential.

AMERICAN CAN COMPANY

230 Park Avenue, New York, N. Y.

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| (1) 1931. The Vitamins, Second Edition, H. C. Sherman and S. L. Smith, Chemical Catalog Co., New York. | (5) 1931. J. Am. Chem. Soc. 53, 3501. |
| (2) 1939. The Vitamins: A Symposium, page 289. American Medical Assn., Chicago. | (6) 1939. The Vitamins: A Symposium, page 249. American Medical Assn., Chicago. |
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| (4) 1939. U. S. Pub. Health Rpts. 54, 2121. 1939. U. S. Pub. Health Rpts. 54, 790. 1939. J. Am. Med. Assoc. 113, 1697. | (8) 1938. Nutrition Abstracts and Reviews 8, 281. 1932. J. Nutrition 5, 307. 1934. J. Nutrition 8, 449. 1935. J. Am. Diet. Assoc. 11, 343. |

We want to make this series valuable to you, so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles. This is the fifty-sixth in a series, which summarize, for your convenience, the conclusions about canned foods reached by authorities in nutritional research.



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